

Listing of the Claims

This listing of claims will replace all prior versions and listings of claims in the application

1.-6. Cancelled

7. (Currently amended) The composition of ~~claim 6~~ claim 17, wherein said transfection agent further comprises one or more neutral lipids.

8.-9. Cancelled

10. (Currently amended, withdrawn) The composition of ~~claim 6~~ claim 17, wherein said cationic lipids comprise one or more monovalent cationic lipids.

11. (Currently amended, withdrawn) The composition of claim 10, wherein said monovalent cationic lipids are selected from the group consisting of DOTMA, DOTAP, DMRIE, and DDAB N-[1-(2,3-dioleoyloxy)-propyl]-N,N,N-trimethyl ammonium chloride (DOTMA), 1,2-bis(oleoyloxy)-3,3-(trimethylammonium)propane (DOTAP), 1,2-dimyristyloxypropyl-3-dimethylhydroxy ethyl ammonium bromide (DMRIE) and dimethyl dioctadecyl ammonium bromide (DDAB).

12. (Currently amended) The composition of ~~claim 6~~ claim 17, wherein said cationic lipids comprise one or more polyvalent cationic lipids.

13. (Currently amended) The composition of claim 12, wherein said polyvalent cationic lipids are selected from the group consisting of DOSPA, DOSPER, DOGS, TMTPS, TMTOS, TMTLS, TMTMS, and TMDOS 2,3-dioleoyloxy-N-[2(sperminecarboxamido)ethyl]-N,N-dimethyl-1-propanaminium trifluoroacetate (DOSPA), 1,3-dioleoyloxy-2-(6-carboxy spermyl)-propylamide (DOSPER), 5-carboxyspermylglycine dioctadecyl-amide (DOGS), tetramethyltetrapalmitoyl spermine (TMTPS), tetramethyltetraoleyl spermine (TMTOS), tetramethyltetralauryl spermine (TMTLS), tetramethyltetramyristyl spermine (TMTMS) and tetramethyldioleyl spermine (TMDOS).

14. (Currently amended) The composition of claim 7, wherein said neutral lipids are selected from the group consisting of ~~DOPE, DPhPE,~~
dioleoylphosphatidylethanolamine (DOPE),
diphytanoylphosphatidylethanolamine (DPhPE) and cholesterol.
- 15.-16. Cancelled
17. (Currently amended) ~~The composition of claim 6,~~ A composition for transfecting a cell which comprises one or more nucleic acid molecules, one or more peptides or proteins, and one or more transfection agents wherein said one or more transfection agents comprise one or more cationic lipids and wherein one or more of said cationic lipids are covalently linked to one or more of said peptides, proteins or both.
18. (Currently amended) ~~The composition of claim 7,~~ A composition for transfecting a cell which comprises one or more nucleic acid molecules, one or more peptides or proteins, and one or more transfection agents wherein said one or more transfection agents comprise one or more cationic lipids, wherein said transfection agent further comprises one or more neutral lipids wherein one or more of said neutral lipids are covalently linked to one or more of said peptides, proteins or both.
19. Cancelled
20. (Currently amended) The composition of ~~claim 4~~ claim 17, wherein said peptides proteins or both are derived from animal, bacterial, viral peptides and/or proteins.
- 21.-26. Cancelled
27. (Currently amended) The composition of ~~claim 4~~ claim 17, wherein at least one of said one or more peptides or proteins is a transport peptide or protein.
28. (Previously presented) The composition of claim 20, wherein at least one of said one or more peptides or proteins is a viral peptide or protein.

29. (Currently amended) The composition of claim 28, wherein said viral peptide or protein is from a virus selected from the group consisting of an influenza virus, a vesicular stomatitis virus, an adenovirus, an alphavirus, a Semliki Forest Virus, a hepatitis virus, a herpes virus, an HIV virus, and a simian virus.
30. (Currently amended) The composition of ~~claim 4~~ claim 17, further comprising DEAE-dextran, chloroquine or combinations thereof.
31. (Currently amended) The composition of ~~claim 4~~ claim 17, wherein at least one of said peptides or proteins is selected from the group consisting of an insulin, a transferrin, an epidermal growth factor, a fibroblast growth factor, a lactoferrin, a fibronectin, an adenovirus penton base, Knob, and hexon protein, a vesicular stomatitis virus glycoprotein, a Semliki Forest Virus core protein, an influenza hemagglutinin, a hepatitis B core protein, an HIV Tat protein, a herpes simplex virus VP22 protein, a histone protein, a high mobility group protein, an invasin protein, an internalin protein, an endotoxin, a diphtheria toxin, a shigella toxin, a melittin, a magainin, a gramicidin, a cecrophin, a defensin, a protegrin, a tachyplesin, a thionin, an indolicidin, a bactenecin, a drosomycin, an apidaecin, a cathelicidin, a bactericidal-permeability-increasing protein, a nisin, a buforin, and fragments thereof.
32. (Currently amended) The ~~composition of claim 1~~ method of claim 52, wherein ~~said composition is capable of transfecting~~ the cell that is transfected is a primary cell culture, a passaged cell culture or a cell line.
33. (Currently amended) The ~~composition~~ method of claim 32, wherein said cell line is a human cell line.
34. (Currently amended) The ~~composition~~ method of claim 32, wherein said cell line is an animal cell line.
35. (Currently amended) The ~~composition~~ method of claim 32, wherein said cell line is a fibroblast.

36. (Currently amended) The composition of ~~claim 4~~ claim 17, wherein at least one of said peptides or proteins comprise multimers of the same or different peptides or proteins.
37. Cancelled
38. (Currently amended) The composition of ~~claim 4~~ claim 17, wherein at least one of said peptides or proteins comprises two or more functions selected from the group consisting of fusagenic, nuclear localization, transport, receptor-ligand and cell adhesion.
39. (Currently amended) A pharmaceutical composition comprising an amount of the composition of ~~claim 4~~ claim 17 effective for transfection of a targeted cell or tissue and a pharmaceutical carrier.
40. (Currently amended) A therapeutic composition comprising an amount of the composition of ~~claim 4~~ claim 17 effective for transfection of a targeted cell or tissue with a selected therapeutic nucleic acid.
41. (Currently amended) A diagnostic composition comprising an amount of the composition of ~~claim 4~~ claim 17 effective for transfection of a targeted cell or tissue with a selected diagnostic nucleic acid.
- 42.-50. Cancelled
51. (Currently amended) A method for transfecting a cell with a nucleic acid, the method comprising the step of contacting the cell with the transfection composition of ~~claim 4~~ claim 18.
52. (Original) A method for transfecting a cell with a nucleic acid, the method comprising the step of contacting the cell with the transfection composition of claim 17.
53. (Original) A method for transfecting a cell with a nucleic acid, the method comprising the step of contacting the cell with the transfection composition of claim 31.

54. (Currently amended) A method for transfecting a cell with a nucleic acid, the method comprising the step of contacting the cell with the transfection composition of ~~claim 48~~ claim 119.
- 55.-77. cancelled
78. (Currently amended) The composition of ~~claim 4~~ claim 17, wherein said one or more nucleic acid molecules are DNA molecules.
79. (Currently amended) The composition of ~~claim 4~~ claim 17, wherein said one or more nucleic acid molecules are RNA molecules.
80. (Currently amended) The composition of ~~claim 4~~ claim 17, wherein said one or more nucleic acid molecules are selected from the group consisting of antisense or antigene nucleic acids, ribozymes, RNA regulatory sequences, inhibitory nucleic acids and regulatory nucleic acids.
81. (Currently amended) The composition of ~~claim 4~~ claim 17, wherein said one or more nucleic acid molecules are diagnostic nucleic acids.
82. (Currently amended) The composition of ~~claim 4~~ claim 17, wherein said one or more nucleic acids are therapeutic nucleic acids.
83. (Currently amended) The composition of ~~claim 4~~ claim 17, wherein said one or more nucleic acids are selected from the group of nucleic acids consisting of nucleic acids comprising natural bases or non-natural bases, nucleic acids capable of expressing proteins, peptides or polypeptides in cells, nucleic acids which inhibit undesired expression of nucleic acids in cells, nucleic acids which inhibit undesired enzymatic activity, nucleic acids which activate desired enzymes, and nucleic acids which catalyze reactions.
- 84.-85. Cancelled
86. (Currently amended) The composition of claim 12, wherein said ~~polycationic~~ polyvalent cationic lipids are polycationic ammonium lipids.

87. (Currently amended) The composition of ~~claim 6~~ claim 17, wherein said cationic lipids comprise saturated and unsaturated alkyl and alicyclic ethers and esters of amines, amides or derivatives thereof.
88. (Previously presented) The composition of claim 7, wherein said neutral lipids are selected from the group consisting of lecithins; phosphatidylethanolamine; phosphatidylethanolamines, DPhPE (diphytanoylphosphatidylethanolamine), DPPE, dipalmitoylphosphatidyl-ethanolamine, POPE; distearoylphosphatidylethanolamine, phosphatidylcholine, phosphatidylcholines, DPPC (dipalmitoylphosphatidylcholine), POPC (palmitoyloleoylphosphatidylcholine), distearoylphosphatidylcholine, phosphatidylglycerol, phosphatidylglycerols, DOPG (dioleoylphosphatidylglycerol), DPPG (dipalmitoylphosphatidyl-glycerol), distearoylphosphatidylglycerol, phosphatidylserine, phosphatidylserines, dioleoylphosphatidylserine, dipalmitoylphosphatidylserine, diphosphatidylglycerols, fatty acid esters, glycerol esters, sphingolipids, cardiolipin; cerebrosides, ceramides, cholesterol, 3 β OH-sterols and mixtures thereof.
- 89.-93. Cancelled
94. (New) The composition of claim 17, wherein the one or more peptides or proteins comprise a sub-cellular localization signal sequence, a nuclear localization signal sequence, a fusagenic sequence, a transport or trafficking sequence, a receptor-ligand sequence or a cell adhesion sequence.
95. (New) A transfection reagent kit which comprises one or more transfection agents wherein said one or more transfection agents comprise one or more cationic lipids and wherein one or more of said cationic lipids are covalently linked to one or more peptides, proteins or both.
96. (New) The transfection reagent kit of claim 95, further comprising one or more nucleic acids molecules.

97. (New) The kit of claim 95, that is a diagnostic kit and which further comprises a diagnostic nucleic acid.
98. (New) The composition of claim 18, wherein said neutral lipids are selected from the group consisting of lecithins; phosphatidylethanolamine; phosphatidylethanolamines, DPhPE (diphytanoylphosphatidylethanolamine), DPPE, dipalmitoylphosphatidyl-ethanolamine, POPE; distearoylphosphatidylethanolamine, phosphatidylcholine, phosphatidylcholines, DPPC (dipalmitoylphosphatidylcholine), POPC (palmitoyloleoylphosphatidylcholine), distearoylphosphatidylcholine, phosphatidylglycerol, phosphatidylglycerols, DOPG (dioleoylphosphatidylglycerol), DPPG (dipalmitoylphosphatidyl-glycerol), distearoylphosphatidylglycerol, phosphatidylserine, phosphatidylserines, dioleoylphosphatidylserine, dipalmitoylphosphatidylserine, diphosphatidylglycerols, fatty acid esters, glycerol esters, sphingolipids, cardiolipin; cerebrosides, ceramides, cholesterol, 3 β OH-sterols and mixtures thereof.
99. (New) The composition of claim 18, wherein said neutral lipids are selected from the group consisting of DOPE, DPhPE, and cholesterol.
100. (New) The composition of claim 18, wherein said cationic lipids comprise one or more monovalent cationic lipids.
101. (New) The composition of claim 100, wherein said monovalent cationic lipids are selected from the group consisting of DOTMA, DOTAP, DMRIE, and DDAB.
102. (New) The composition of claim 18, wherein said cationic lipids comprise one or more polyvalent cationic lipids.
103. (New) The composition of claim 102, wherein said polycationic lipids are polycationic ammonium lipids.
104. (New) The composition of claim 103, wherein said polycationic lipids are selected from the group consisting of DOSPA, DOSPER, DOGS, TMTPS, TMTOS, TMTLS, TMTMS, and TMDOS.

105. (New) The composition of claim 18, wherein said cationic lipids comprise saturated and unsaturated alkyl and alicyclic ethers and esters of amines, amides or derivatives thereof.
106. (New) The composition of claim 18, wherein the one or more peptides or proteins comprise a sub-cellular localization signal sequence, a nuclear localization signal sequence, a fusagenic sequence, a transport or trafficking sequence, a receptor-ligand sequence or a cell adhesion sequence.
107. (New) The composition of claim 18, wherein at least one of said one or more peptides or proteins is a transport peptide or protein.
108. (New) The composition of claim 18, wherein said peptides, proteins or both are derived from animal, bacterial, or viral peptides or proteins.
109. (New) The composition of claim 108, wherein at least one of said one or more peptides or proteins is a viral peptide or protein.
110. (New) The composition of claim 109, wherein said virus is selected from the group consisting of an influenza virus, a vesicular stomatitis virus, an adenovirus, an alphavirus, a Semliki Forest Virus, a hepatitis virus, a herpes virus, an HIV virus, and a simian virus.
111. (New) The composition of claim 18, further comprising DEAE-dextran, chloroquine or combinations thereof.
112. (New) The composition of claim 18, wherein at least one of said one or more peptides or proteins is selected from the group consisting of an insulin, a transferring, an epidermal growth factor, a fibroblast growth factor, a lactoferrin, a fibronectin, an adenovirus penton base, Knob, and hexon protein, a vesicular stomatitis virus glycoprotein, a Semliki Forest Virus core protein, an influenza hemagglutinin, a hepatitis B core protein, an HIV Tat protein, a herpes simplex virus VP22 protein, a histone protein, a high mobility group protein, an invasin protein, an internalin protein, an endotoxin, a diphtheria toxin, a shigella toxin, a melittin, a magainin, a gramicidin, a cecrophin, a defensin, a protegrin, a

tachyplesin, a thionin, an indolicidin, a bactenecin, a drosomycin, an apidaecin, a cathelicidin, a bactericidal-permeability-increasing protein, a nisin, a buforin, and fragments thereof.

113. (New) The composition of claim 18, wherein at least one of said peptides or proteins comprises two or more functions selected from the group consisting of fusagenic, nuclear localization, transport, receptor-ligand and cell adhesion.
114. (New) The composition of claim 18, wherein said one or more nucleic acid molecules are DNA molecules.
115. (New) The composition of claim 18, wherein said one or more nucleic acid molecules are RNA molecules.
116. (New) The composition of claim 18, wherein said one or more nucleic acid molecules are selected from the group consisting of antisense or antigene nucleic acids, ribozymes, RNA regulatory sequences, inhibitory nucleic acids and regulatory nucleic acids.
117. (New) The composition of claim 18, wherein said one or more nucleic acid molecules are diagnostic nucleic acids.
118. (New) The composition of claim 18, wherein said one or more nucleic acids are therapeutic nucleic acids.
119. (New) The composition of claim 18, wherein said one or more nucleic acids are selected from the group of nucleic acids consisting of nucleic acids comprising natural bases or non-natural bases, nucleic acids capable of expressing proteins, peptides or polypeptides in cells, nucleic acids which inhibit undesired expression of nucleic acids in cells, nucleic acids which inhibit undesired enzymatic activity, nucleic acids which activate desired enzymes, and nucleic acids which catalyze reactions.
120. (New) The method of claim 51, wherein the cell that is transfected is a primary cell culture, a passaged cell culture or a cell line.

121. (New) The method of claim 120, wherein said cell line is a human cell line.
122. (New) The method of claim 120, wherein said cell line is an animal cell line.
123. (New) The method of claim 120, wherein said cell line is a fibroblast.
124. (New) A pharmaceutical composition comprising an amount of the composition of claim 18 effective for transfection of a targeted cell or tissue and a pharmaceutical carrier.
125. (New) A therapeutic composition comprising an amount of the composition of claim 18 effective for transfection of a targeted cell or tissue with a selected therapeutic nucleic acid.
126. (New) A diagnostic composition comprising an amount of the composition of claim 18 effective for transfection of a targeted cell or tissue with a selected diagnostic nucleic acid.
127. (New) A transfection reagent kit which comprises one or more transfection agents wherein said one or more transfection agents comprise one or more cationic lipids and one or more neutral lipids and wherein one or more of said neutral lipids are covalently linked to one or more of peptides, proteins or both.
128. (New) The transfection reagent kit of claim 127, further comprising one or more nucleic acids molecules.
129. (New) The kit of claim 127, that is a diagnostic kit and which further comprises a diagnostic nucleic acid.